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# (12) United States Patent Finuf et al.

# (54) METHODS AND SYSTEMS FOR WELDING COPPER USING BLUE LASER

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(58) Field of Classification Search

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#### (57) ABSTRACT

A visible light laser system and operation for welding materials together. A blue laser system that forms essentially perfect welds for copper based materials. A blue laser system and operation for welding conductive elements, and in particular thin conductive elements, together for use in energy storage devices, such as battery packs.

# 83 Claims, 11 Drawing Sheets

